Students Planning and Conducting Engineering (SPACE)

A Technology Transfer for Education Project

FACT SHEET Air Force Research Laboratory Space Vehicles Directorate 505.853.3515 www.vs.afrl.af.mil

The Air Force Research Laboratory Students Planning And Conducting Engineering (AFRL SPACE) Project provides a unique learning opportunity for high school students. With the aid of their teachers and mentors provided by the AFRL, students structure and perform high-quality research and development activities.

The project has four goals:

- Provide a team learning experience otherwise unavailable to students.
- Enhance national, state, and local school-to-careers goals by providing real-world research and development experience to high school students.
- Stimulate an understanding that real-world research and development involves multiple disciplines working together.
- Enhance the Air Force's image and good will.

Teachers and mentors volunteer their time as coaches to support students involved in this project. Two mentors coach each team, which includes a student leader and members each with a specific role.

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Participating schools recruit both college and non-college bound students to form their AFRL SPACE team. Teachers can elect to implement the project part of the classroom curriculum or as an after-school activity.

Each team selects a topic, designs a project, and determines the materials needed to conduct their research and development activities. AFRL may offer resources in the form of equipment and facilities as available. Under guidance of their teachers and mentors, student teams research their topic, develop their projects, conduct tests, and collect and analyze data.

Using the AFRL's Technology Transfer for Education Systems Engineering Methodology, each team accomplishes a full-scale research and development activity. Teams begin by completing a preliminary design, which identifies the scope and nature of the activity. The preliminary design is briefed to an AFRL review team, which then authorizes the continuation of the student team's research and development activity. Midway through the activity, each team must undergo a Critical Design Review during which they present their progress to an AFRL Review Team.

Students present their findings during the AFRL SPACE Symposium. This event includes a formal briefing and technical demonstration. State and district education administrators; school principals; AFRL scientists and engineers, and senior management; representatives from the New Mexico congressional delegation, state agencies, and other participating agencies and organizations are invited to the presentations. Special guests include middle school students participating in the AFRL Providing Engineering and Technology Experiences for Students Project.

Successful activities from previous years include: "Electromagnetic Sliding Satellite Door" which was issued patent #6,109,564; "Lunar Ice Locator" and "Suntracker" presented papers at the 2001 American Institute of Aeronautics and Astronautics Space Conference; "Target Acquisition Project" and "Water Diagnostic Computer Program for the Chemical Oxygen-Iodine Laser" received awards from the Directed Energy Professional Society.

An additional benefit of the program is the leadership experience gained by Air Force volunteers. Coaching a student team develops many project management skills in a simplified, non-threatening situation.